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NOTICE OF ALLOWANCE AND FEE(S) DUE

34300 7590 04/05/2010

PATENT DEPARTMENT (51851)
KILPATRICK STOCKTON LLP
1001 WEST FOURTH STREET
WINSTON-SALEM, NC 27101

EXAMINER

BODDIE, WILLIAM

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 04/05/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/393,998	09/08/1999	CRAIG F. CULVER	IMM060.RE	3595

TITLE OF INVENTION: INTERFACE CONTROL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$0	\$0	\$1510	07/06/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE
Commissioner for Patents
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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**PATENT DEPARTMENT (51851)
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WINSTON-SALEM, NC 27101**

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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EXAMINER	ART UNIT	CLASS-SUBCLASS
BODDIE, WILLIAM	2629	345-161000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/147; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

1

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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EXAMINER

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Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

09/393,998

Examiner

WILLIAM L. BODDIE

Applicant(s)

CULVER, CRAIG F.

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERIT IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/6/10.
2. ☒ The allowed claim(s) is/are 28-31, 35, 52, 64-66, 74-78 and 91.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

1. The following is an examiner's statement of reasons for allowance. With respect to **claim 28**, the prior art either alone or in combination teaches an interface control device, comprising:

a support housing configured to be held by one hand of a user;

a user manipulatable member engageable and moveable by a single thumb of said user;

at least one sensor coupled to said user manipulatable member and operative to sense movement in a first and second degree of freedom and to generate at least one sensor signal associated with said movement;

said user manipulatable member moveable in a third degree of freedom and configured to cause a trigger signal to be sent to an application on a computer, said third dimension approximately orthogonal to said first and second dimensions; and

at least one actuator coupled to said interface control device, said actuator operative to provide a feedback force to said user,

wherein said interface control device is configured to be operated by said one hand of a user.

The prior art does NOT teach either alone or in combination with the above limitations IN COMBINATION with the following limitations. Wherein said user manipulatable member is coupled to an arm member having rotary motion about a pivot

point to provide motion in one of said first or second dimensions, wherein said actuator is coupled to said arm member to output forces about said pivot point.

2. With respect to **claims 35, 64 and 78**, the prior art teaches the same art taught above in claim 28.

The prior art does NOT teach either alone or in combination the above limitations IN COMBINATION with the following limitations.

Wherein a centering spring bias on said user manipulatable member may be electrically actuated by a signal received from said computer, allowing said interface control device to have a centering mode and a non-centering mode, selected by said computer.

3. With respect to **claim 52**, the prior art teaches either alone or in combination, an interface control device in communication with a computer for providing positioning signals to said computer for manipulating an image in a computer environment displayed on a screen by said computer, said device comprising:

a support housing configured to be held by one hand of a user such that no additional support is needed to operate the device;

a user manipulatable member coupled to said housing and engageable and moveable by a single thumb of said user in two degrees of freedom relative to said housing, and configured with a contact surface configured to be contacted by said thumb;

at least one sensor coupled to said user manipulatable member and operative to sense movement of said user manipulatable member in said two degrees of freedom, said sensor operative to provide positioning signals which control positioning of said image on said screen by said computer;

at least one actuator coupled to said interface control device, wherein said actuator is operative to provide a feedback force to said user that is correlated with an interaction of said displayed image in said computer environment, and a first brake coupled to an arm member providing drag in a first of said two degrees of freedom; and a second computer controlled brake coupled to said user manipulatable member providing a drag in a second one of said degrees of freedom of said user manipulatable member.

a thumb trigger sensor operative to detect a trigger command from said user and to cause a trigger signal to be sent to said computer, said trigger command including a pressing motion by said thumb causing said user manipulatable member to move in a trigger degree of freedom different from said two degrees of freedom, wherein said user manipulatable member is configured to allow said user to control said movement in said two degrees of freedom and perform said trigger command simultaneously using said signal thumb on said contract surface, and

wherein said interface control device is configured to be operated by said one hand of a user.

4. The prior art does NOT teach either alone or in combination the above limitations IN COMBINATION with the following limitations.

Wherein said user manipulatable member is a sliding member which can be moved along at least a portion of said arm member in a linear degree of freedom, and wherein said second brake outputs forces in said linear degree of freedom.

5. With respect to **claim 74**, the prior art teaches either alone or in combination, an interface control feedback device in communication with a computer for providing positioning signals to said computer for manipulating an image in a computer environment displayed on a screen by said computer, said device comprising:

a support housing configured to be held by one hand of a user a sliding contact member engageable and moveable by a thumb of said user in two degrees of freedom relative to said support housing while said support housing is held by said hand of said user, one of said two degrees of freedom being a linear degree of freedom, wherein said movement in said two degrees of freedom positions said image in two screen dimensions on said display device;

at least one sensor coupled to said user manipulatable member and operative to sense movement of said sliding contact member in said two degrees of freedom, said sensor operative to provide positioning signals which control said positioning of said image on said display device;

at least one actuator coupled to said arm member to output forces about said pivot point, wherein said forces facilitate the selection of options or icons displayed on said display device based on feedback signals generated by an application running on said computer; and

a trigger sensor for detecting a trigger command from said user, said trigger command including moving said sliding contact member approximately orthogonally to said two degrees of freedom,

wherein said interface control device is configured to be operated by said one hand of a user.

6. The prior art does NOT teach either alone or in combination the above limitations IN COMBINATION with the following limitations.

An arm member coupled to said sliding contact member, said arm member operative to rotationally move about a pivot point to provide motion in one of said two degrees of freedom, wherein said linear degree of freedom is approximately perpendicular to an axis of rotation of said arm member and is in substantially the same plane as said rotary motion.

7. With respect to **claim 91**, the prior art teaches either alone or in combination, a device comprising:

a housing configured to be held in one hand such that no additional support is needed to operate the device;

a user manipulatable member coupled to said housing and configured to be manipulated by a single digit of a user in two degrees of freedom, wherein said user manipulatable member comprises an arm member operable to rotate in said rotary degree of freedom;

a sensor coupled to said user manipulatable member and operative to sense movement of said user manipulatable member in said two degrees of freedom, wherein one of said two degrees of motion comprises a rotary degree of freedom;

an actuator operative to provide a feedback force to said user;

a trigger operative to move in a degree of freedom different from said two degrees of freedom and configured to be actuated by said single digit simultaneously with said user manipulatable object,

wherein said device is configured to be operated by said one hand of a user.

8. The prior art does NOT teach either alone or in combination the above limitations IN COMBINATION with the following limitations.

A sliding contact member operable to move in a linear degree of freedom approximately perpendicular to an axis of rotation of said arm member.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

wlb
1/12/10